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Dynamic programming and optimal control vol. i 4th edition

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The updated fourth edition of Vol. II offers significant revisions to the original two-volume dynamic programming textbook by Bertsekas. This new version contains substantial additions and reorganizations of existing content, resulting in a more than 60% increase in length compared to the third edition. The comprehensive resource now spans over 700 pages and has been restructured to focus primarily on approximate DP, occupying more than half of the book. The revised book places greater emphasis on new research in approximate DP and simulation-based methods that emerged after 1996, including asynchronous iterative methods. Key highlights include: * Simulation-based methods for approximate value iteration, policy iteration, and Q-learning * New algorithms for stochastic shortest path problems and optimistic policy iteration * Generalized weighted Bellman equations for multistep methods and geometric/sampling techniques * Computational methods for generalized/abstract discounted DP with convergence analysis and error bounds * Monte Carlo linear algebra methods for large-scale regression and systems of linear equations The book features numerous examples, exercises, and detailed solutions, making it suitable for graduate courses at M.I.T. Educational resources such as slides and videos are also available on the MIT Open Courseware platform. 1. Discounted Problems - Theory 2. Discounted Problems - Computational Methods 3. Stochastic Shortest Path Problems 4. Undiscounted Problems 5. Average Cost per Stage Problems 6. Approximate Dynamic Programming - Discounted Models 7. Approximate Dynamic Programming - Nondiscounted Models and Generalizations Professor Bertsekas can be reached at: U.S.A, Tel.: (617) 489-3097, Fax.: (617) 489-2017, Email: athenasc@world.std.com His books include: Reinforcement Learning and Optimal Control by D. P. Bertsekas, Convex Analysis and Optimization by D. P. Bertsekas with A. Nedic and A. E. Ozdaglar, and Constrained Optimization and Lagrange Multiplier Methods by D. P. Bertsekas